

Types on #18, Directions For #19-24 Q>P, 22, 23, 24)

Math 7
Independent & Dependent Probability
Quiz Review

Name _____
Date _____ Hour _____

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State whether each problem is an example of independent or dependent probability. Show what you multiply to find the probability. Draw pictures when necessary (like for dependent probability)

1) The names of 9 boys and 7 girls from your class are put into a hat. Once a name is drawn it is not replaced. What is the probability that the first name drawn is a girl, and that the second name drawn is a girl?

INDEPENDENT or DEPENDENT

16 total

$$P(\text{girl}) = \frac{7}{16}$$

BBBBB GGG
BBBB ~~GGG~~

$$P(\text{girl}) = \frac{6}{15}$$

$$P(\text{girl and girl}) = \frac{7}{16} \cdot \frac{6}{15} = \frac{42}{240} = \frac{7}{40}$$

2) A bowl of fruit is on the table. It contains 2 apples, 5 oranges, and 6 bananas. Joseph and Kenneth come home from school and each randomly grab one piece of fruit each. What is the probability that they both grab a banana?

INDEPENDENT or DEPENDENT

13 total

AA OOOOO
~~BBBBB~~

$$P(\text{banana and banana}) = \frac{6}{13} \cdot \frac{5}{12} = \frac{30}{156} = \frac{5}{26}$$

3) The game show contestant spins a spinner with the letters A through H on it, then either an easy or hard question is picked randomly for her. What is the probability that the spinner will stop on the letter F and she is given an easy question?

INDEPENDENT or DEPENDENT

A B C D E F G H

8 letters

Easy or Hard
2 total

$$P(\text{F and easy}) = \frac{1}{8} \cdot \frac{1}{2} = \frac{1}{16}$$

4) Your drawer contains 10 red socks and 6 blue socks. It's too dark to see which are which, but you grab two anyway. What is the probability that both socks are blue?

INDEPENDENT or DEPENDENT

16 total

RRRRRRRRRR
~~BBBBB~~

$$P(\text{blue and blue}) = \frac{6}{16} \cdot \frac{5}{15} = \frac{30}{240} = \frac{1}{8}$$

Key

5) You are about to attack an orc in a role playing game. You will throw two dice, one numbered 1 to 7 and the other with the letters A through G. What is the probability that you will roll a number other than 4 and a letter after C?

~~with the letters A through G~~
a number other than 4

1 2 3 4 5 6 7
A B C D E F G

INDEPENDENT or DEPENDENT

$\frac{6}{7}$ $\frac{4}{7}$
P(other than 4 and after C) = $\frac{6}{7} \cdot \frac{4}{7} = \frac{24}{49}$

6) A box contains 11 purple marbles, 6 red marbles, and 9 orange marbles. If you pick two without looking, what is the probability that one will be red and the other will be orange?

26 total

INDEPENDENT or DEPENDENT

$\frac{6}{26}$ $\frac{9}{25}$
P(red and the other orange) = $\frac{6}{26} \cdot \frac{9}{25} = \frac{54}{650} = \frac{27}{325}$

7) The game of backgammon uses two standard dice, each with the numbers 1 through 6. You need to roll double 1s to win the game. What is the probability that you will roll double 1's on your next roll?

INDEPENDENT or DEPENDENT

$\frac{1}{6}$ $\frac{1}{6}$
P(double 1's) = $\frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$

8) You accidentally dropped a coin from the top of 11 stairs. What is the probability that it will land on the 9th step and be facing heads up?

INDEPENDENT or DEPENDENT

$\frac{1}{11}$ $\frac{1}{2}$
P(9th step and heads) = $\frac{1}{11} \cdot \frac{1}{2} = \frac{1}{22}$

Key

State whether each event is independent or dependent. YOU MUST EXPLAIN WHY. Please use complete sentences.

9. Picking out a piece of gum, chewing it, then picking out another piece of gum.

dependent because the first event (chewing it) affects the number of pieces of gum to choose on the 2nd event.

10. Spinning a spinner, and then rolling a die

independent because if you spin a spinner that will not affect the outcome of rolling a die.

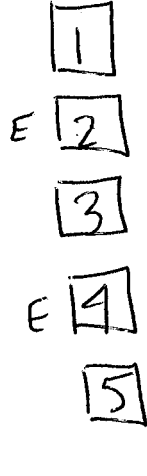
11. Playing UNO, picking a Draw 4 card, don't replace it, then picking a SKIP.

dependent because once you picked the card & did not replace it, you affected the total cards to choose on the 2nd event.

12. Flipping a coin three times.

independent because flipping a coin once does not affect the outcome of the next (1-2) times you flip the coin again.

A box contains 10 cards numbered 1-10. You draw a card. Without replacing the first card, you draw a second card. Find each probability. (DRAW PICTURES)



13. P(1, then 10)

$\frac{1}{10} \cdot \frac{1}{9} = \frac{1}{90}$

14. P(3, then an even number)

$\frac{1}{10} \cdot \frac{5}{9} = \frac{5}{90} = \frac{1}{18}$

15. P(even, then a 6 or 7)

$\frac{5}{10} \cdot \frac{2}{9} = \frac{10}{90} = \frac{1}{9}$

16. P(even, then an odd)

$\frac{5}{10} \cdot \frac{5}{9} = \frac{25}{90} = \frac{5}{18}$

17. P(multiple of 4, then prime)

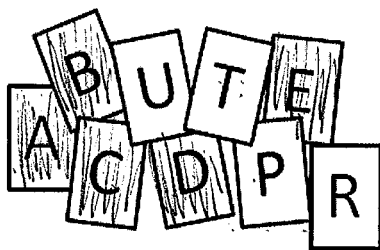
$\frac{2}{10} \cdot \frac{4}{9} = \frac{8}{90} = \frac{4}{45}$

Fix

18. P(prime, then ~~even~~)

$\frac{4}{10} \cdot \frac{0}{9} = 0$

 = Blue  = Red



The cards at the left are in a bag. If you choose one card, *don't replace it*, and choose another card find the probability of each event. (Blue cards are A, B, C, D, E; Red cards are P, R, T, U)

Key

9 total cards

19. P(blue card, then blue card)

$$\frac{5}{9} \cdot \frac{4}{8} = \frac{20}{72} = \left(\frac{5}{18}\right)$$

20. P(A, then a vowel)

$$\frac{1}{9} \cdot \frac{2}{8} = \frac{2}{72} = \left(\frac{1}{36}\right)$$

21. P(B, then a consonant)

$$\frac{1}{9} \cdot \frac{5}{8} = \left(\frac{5}{72}\right)$$

* FIX
22. P(B, then P)

$$\frac{1}{9} \cdot \frac{1}{8} = \left(\frac{1}{72}\right)$$

* FIX
23. P(T, then a vowel)

$$\frac{1}{9} \cdot \frac{3}{8} = \frac{3}{72} = \left(\frac{1}{24}\right)$$

* FIX
24. P(D, then U or R)

$$\frac{1}{9} \cdot \frac{2}{8} = \frac{2}{72} = \left(\frac{1}{36}\right)$$

25. P(blue card, then a red card)

$$\frac{5}{9} \cdot \frac{4}{8} = \frac{20}{72} = \left(\frac{5}{18}\right)$$

26. P(vowel, then a consonant)

$$\frac{3}{9} \cdot \frac{6}{8} = \frac{18}{72} = \frac{2}{8} = \left(\frac{1}{4}\right)$$